GX-280D-SS

OPERATOR'S MANUAL

4-HEAD 3-MOTOR AUTOMATIC REVERSE SURROUND STEREO TAPE DECK

WARNING:

To prevent fire or shock hazard, do not expose this appliance to rain or moisture.

AKAI®

MANUFACTURED & DISTRIBUTED BY AKAI ELECTRIC CO., LTD./AKAI TRADING CO., LTD./AKAI AMERICA LTD.

CEE, CSA, UL, and LA Standard models are not equipped with a Voltage Selector or Cycle Conversion Switch. Therefore, voltage and cycle conversion is not necessary. If your machine corresponds to any of these standards, please disregard all references to voltage and cycle adjustment throughout this manual.

CEE Models	:	220V, 50Hz
CSA Models	:	120V, 60Hz
UL & LA Models:		120V, 60Hz

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GX (GLASS & CRYSTAL FERRITE) HEAD

Akai has equipped this model with its new and amazing Glass & Crystal Ferrite Recording and Playback Heads to bring you unequalled open reel high fidelity sound. With the Glass & Crystal Ferrite Head, superbly wider frequencies with clear highs can be recorded in all their true fidelity with low noise tape. In other words, with the GX Head, a high dynamic range and excellent signal-to-noise ratio are achieved. The secret of this success lies in the head materials, superior processing technique and the focused-field recording system. The core of this quality head is made of single crystal ferrite and is mounted and set in glass. The superior high range characteristics are contributable to the structure of the head gap which focuses the magnetic field into a sharp oblong radius. This focused field recording system minimizes high frequency loss, eliminating undue equalization and achieving a wider dynamic range.

4-CHANNEL SURROUND STEREO

What is all the talk about 4-channel stereo and what are the advantages? 4-channel stereo is equally as great an achievement as the advancement from monaural to 2-channel stereo. Just as 2-channel stereo sound reproduction meant the exodus of flat monaural sound, this epoch-making new system eliminates the inability to pick up and reproduce pure concert hall sound. New 4-channel stereo uses 4 signal paths or sound tracks in the program material and in playback approximates the complexity of the sound waves which reach the listener's ear when attending a live concert hall performance.

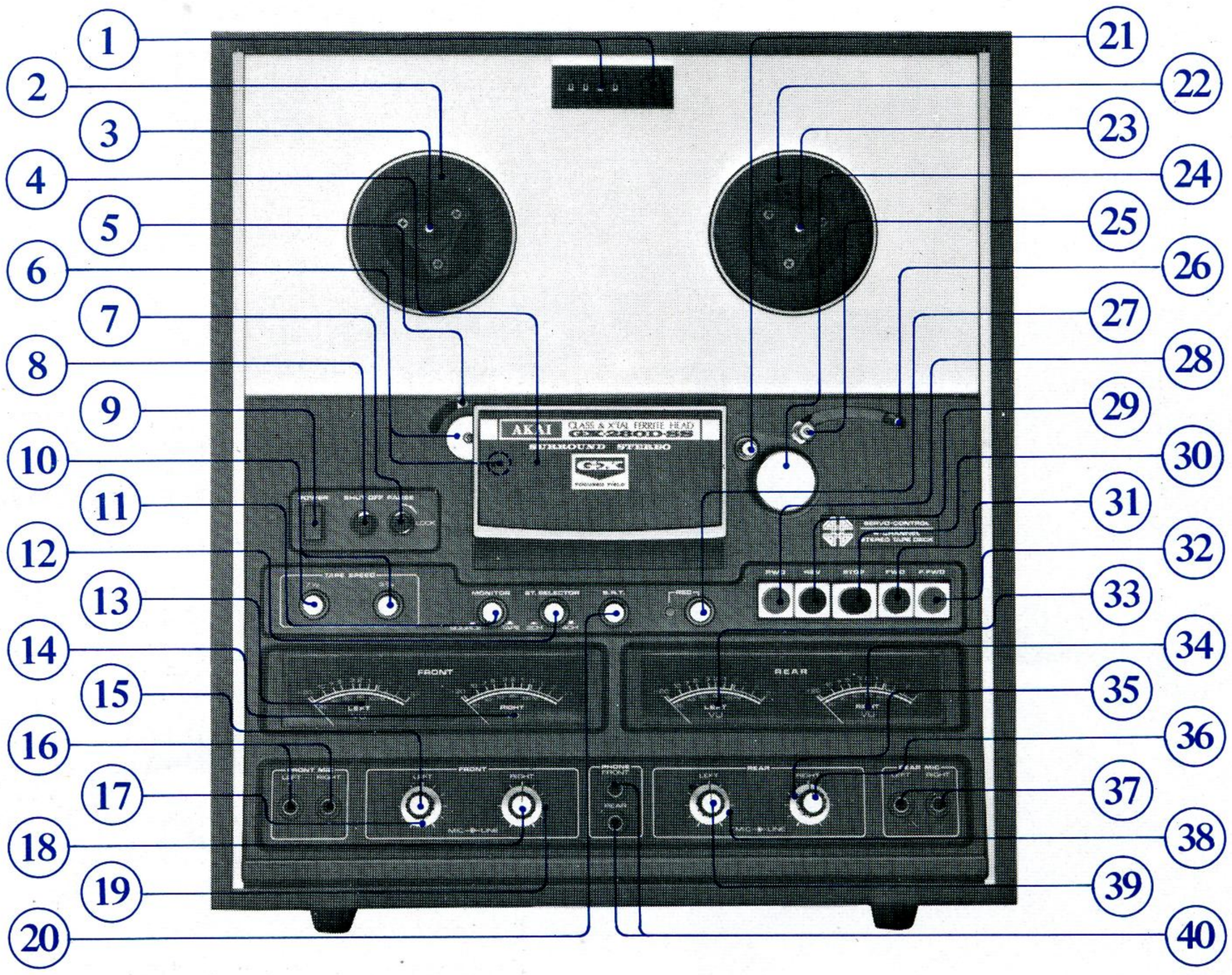
For playback, 4 speakers are positioned to surround the listener. The sound from the front and rear speakers give the listener an exciting "sense of presence". With the 4 speakers each delivering separate sound, you are literally surrounded with a wall of sound. This 4-dimensional sound reproduction makes conventional stereo seem empty and insufficient.

AKAI's "SURROUND STEREO" supplements conventional stereo's 2 front speakers with two additional rear speakers to form the "2-2 system". The listener is surrounded by two sets of speakers (left & right front and left & right rear). This arrangement does not mean, however, that simply adding two speakers to a 2-channel system is all that is necessary for 4-channel playback. At recording time, 4 microphones are used and sound is picked up from 4 separate places. Four separate recordings are made using 4 separate channels (four tracks in one direction). This 4-channel stereo tape feeds into 4 pre-amplifiers and 4 main amplifiers to activate a 4-speaker system. Thus, at playback time, sounds from separate channels are emitted from each speaker providing the listener with a feeling that he is listening to concert hall sound from the best seat in the auditorium.

Model GX-280D-SS Stereo Tape Deck is a compatible 4-channel/2-channel model. For 2-channel operation, only the front channels are utilized.

For exciting 4-channel surround stereo playback, a 4-channel external power amplifier or two 2-channel amplifiers can be used to activate a 4-speaker system.

CONTROLS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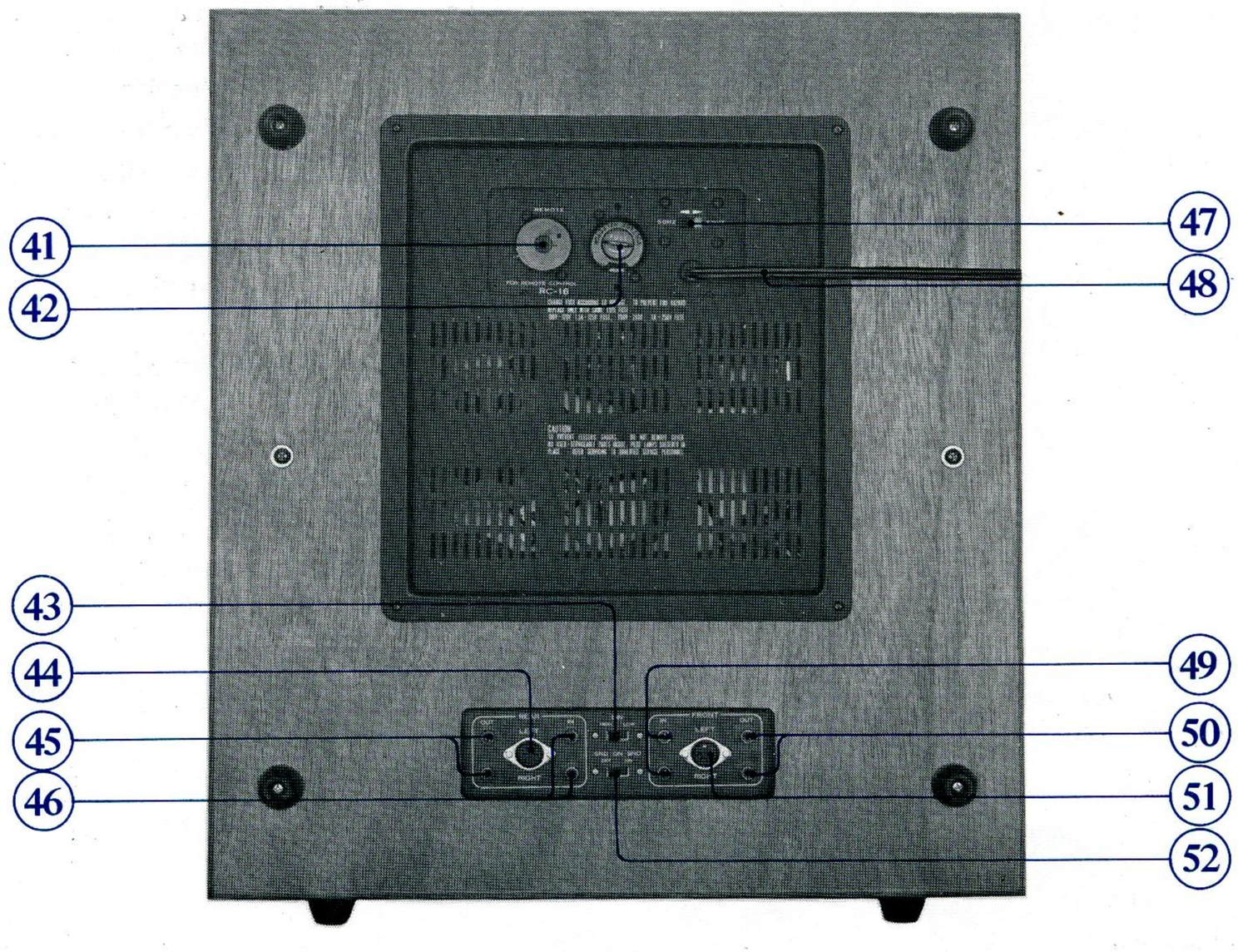
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1. **INDEX COUNTER & RESET BUTTON**
With Reset Button, set Index Counter to "0000" before beginning operation.
2. **SUPPLY REEL TABLE**
3. **REEL RETAINER**
Built-in Reel Retainer locks reel firmly into place.
4. **HEAD COVER**
Houses Full Track Erase, Half Track Erase, and GX Recording and Playback Heads.
5. **TAPE TENSION LEVER**
6. **TAPE GUIDE/SENSING PIN**
7. **PAUSE BUTTON**
Convenient for temporarily suspending tape movement during operation. Lock into pause position by turning to right.
8. **AUTOMATIC SHUT-OFF BUTTON**
Linked to Automatic Shut-Off Lever. Refer to page 4.
9. **POWER SWITCH**
10. **SPEED SELECTOR SWITCHES**
(7-1/2 and 3-3/4 ips)
11. **MONITOR SWITCH**
To monitor program source, depress to SOURCE (in) position. To monitor recorded signals or for playback, set to TAPE (out) position.
12. **STEREO SELECTOR**
For 2-channel operation, depress to "2-CH" position. For 4-channel operation, set to "4-CH" position.
13. **VU METER (Left front channel)**
Indicates left Front Channel recording/playback level.
14. **VU METER (Right front channel)**
Indicates right Front Channel recording/playback level.
15. **MICROPHONE RECORDING LEVEL CONTROL (Left front channel)**
Adjust left Front Channel microphone input level while observing left Front VU Meter.
16. **FRONT CHANNEL MICROPHONE JACKS**
For front channel microphone recording.
17. **LINE RECORDING LEVEL CONTROL (Left front channel)**
Adjust left Front Channel line input level while observing left Front VU Meter.
18. **MICROPHONE RECORDING LEVEL CONTROL (Right front channel)**
Adjust right Front Channel microphone input level while observing right Front VU Meter.
19. **LINE RECORDING LEVEL CONTROL (Right front channel)**
Adjust right Front Channel line input level while observing right Front VU Meter.
20. **TAPE SELECTOR SWITCH**
Depress when using AKAI Super Range Tape or other make low noise tapes.
21. **CAPSTAN**
22. **TAKE-UP REEL TABLE**
23. **REEL RETAINER**
24. **PINCH WHEEL**
Presses against Capstan to transport tape.
25. **TAPE GUIDE/SENSING PIN**
26. **AUTOMATIC SHUT-OFF LEVER**
For automatic stop-shut-off, refer to page 4 .
27. **RECORD SAFETY BUTTON**
While holding this button at depressed position, depress FWD Button to effect recording mode.
28. **REWIND BUTTON**
For rewinding tape at fast speed.
29. **REVERSE BUTTON**
For effecting manual reverse playback.
30. **STOP BUTTON**
Depress to stop tape travel.
31. **FORWARD BUTTON**
Advances tape for recording or playback.
32. **FAST FORWARD BUTTON**
Advances tape at high speed.
33. **VU METER (Left rear channel)**
Indicates left Rear Channel recording/playback level.
34. **VU METER (Right rear channel)**
Indicates right Rear Channel recording/playback level.
35. **LINE RECORDING LEVEL CONTROL (Right rear channel)**
Adjust right Rear Channel line input level while observing right Rear VU Meter.
36. **MICROPHONE RECORDING LEVEL CONTROL (Right rear channel)**
Adjust right Rear Channel microphone input level while observing right Rear VU Meter.
37. **REAR CHANNEL MICROPHONE JACKS**
For Rear Channel microphone recording.
38. **LINE RECORDING LEVEL CONTROL (Left rear channel)**
Adjust left Rear Channel line input level while observing left Rear VU Meter.
39. **MICROPHONE RECORDING LEVEL CONTROL (Left rear channel)**
Adjust left Rear Channel microphone input level while observing left Rear VU Meter.
40. **HEADPHONE JACKS (Front and Rear channel)**
41. **REMOTE CONTROL SOCKET**
For connection of AKAI Remote Control unit RC-16 (optional accessory).
42. **UNIVERSAL VOLTAGE SELECTOR & FUSE POST**
For adjusting voltage input, refer to page 11.
43. **DIN JACK INPUT SELECTOR SWITCH**
When using Din Jack connection, if output level of external amplifier is high, set to High position, and if low, set to Low position.
44. **DIN JACK (Rear channel)**
Enables inter-connection with an external amplifier by use of a single DIN connection cord.
45. **REAR CHANNEL LINE OUTPUT JACKS**
Connects to Tape Inputs of external amplifier.
46. **REAR CHANNEL LINE INPUT JACK**
Connects to outputs of external source.
47. **CYCLE CONVERSION SWITCH**
Set to 50 or 60 Hz to correspond with area power source.
48. **A.C. CORD**
49. **FRONT CHANNEL LINE INPUT JACKS**
Connects to outputs of external source.
50. **FRONT CHANNEL LINE OUTPUT JACKS**
Connects to tape inputs of external amplifier.
51. **DIN JACK (Front channel)**
Enables inter-connection with external amplifier by use of a single DIN connection cord.
52. **SOUND-ON-SOUND SWITCH**

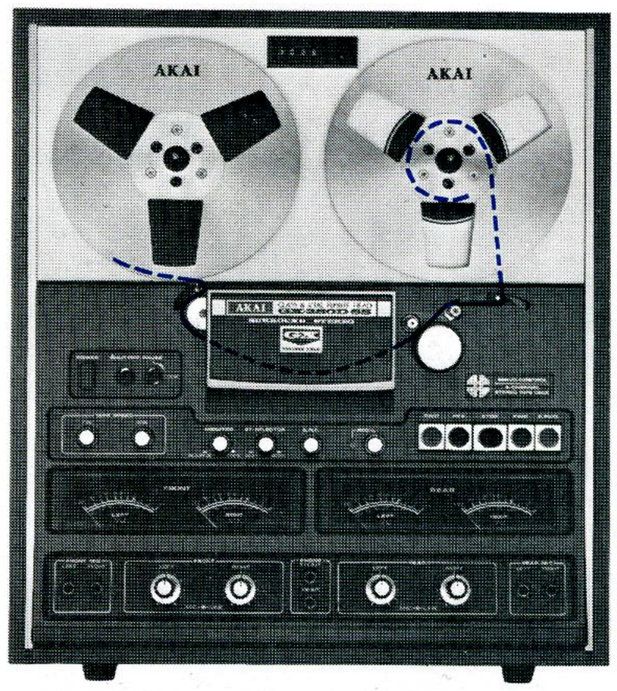
4-track 4-channel stereo

1	→	Front CH left
2	→	Rear CH left
3	→	Front CH right
4	→	Rear CH right

4-track 2-channel stereo

1	→	Left CH
2	←	Right CH
3	→	Right CH
4	←	Left CH

→ Side A
← Side B



TAPE SELECTOR SWITCH

Depress Tape Selector Switch when using Akai S.R.T. (super range tape) or other make low noise tape. This feature brings out the maximum response of low noise tape and works to change the recording equalization according to the tape. Although the GX-280D-SS exhibits a good frequency response with regular tape, this is further extended with low noise tape.

TAPE SPEED SELECTION

This model operates on two tape speeds; i.e., 7-1/2 and 3-3/4 ips. Simply depress 7-1/2 or 3-3/4 Tape Speed Selector Switch according to desired speed. **Recording time using an 1800 ft. tape :** (2-channel stereo) 3 hrs. at 3-3/4 ips and 1-1/2 hrs. at 7-1/2 ips. (4-channel stereo) 1-1/2 hrs. at 3-3/4 ips. and 3/4 hrs. at 7-1/2 ips.

4-TRACK RECORDING/PLAYBACK SYSTEM

The GX-280D-SS employs a 4-track system which can be used for either 4-channel or 2-channel stereo recording and playback. Select system with the Stereo Selector on front panel.

4-CHANNEL STEREO RECORDING/PLAYBACK

4-channel stereo recording and playback requires the simultaneous use of all 4-tracks in one direction. Set Stereo Selector to 4-CH position and use front and rear channel controls.

2-CHANNEL STEREO RECORDING/PLAYBACK

2-channel stereo recording and playback requires the simultaneous use of two tracks. Set Stereo Selector to 2-CH position and use only front channel controls. The first stereo recording (playback) takes place on tracks 1 and 3 and the second on tracks 2 and 4 after the reels have been inverted.

TAPE LOADING

1. Place a full reel of tape on the Supply Reel Table and an empty reel on the Take-Up Reel Table.
2. Lock reel into place pulling tip of retainer on reel shaft outward and turning to left or right.
3. Unwind about a 75 cm length of tape from the supply reel and then thread tape properly as shown by the dotted lines in the figure.
4. Insert end of tape in slot of empty reel and wind tape around the reel hub two or three times.
5. Continue winding tape onto take-up reel until all tape slack has been taken up.

DIRECT FUNCTION CHANGE CONTROL SYSTEM

A completely automatic function change control system is employed in this model for easy and speedy change of operating modes. The necessity of depressing the Stop Button before changing modes is eliminated.

FAST FORWARD & REWIND

To effect fast forward or rewind, depress Fast Forward or Rewind Button on control panel. Use Stop Button to stop fast forward or rewind operation.

AUTOMATIC STOP & SHUT-OFF

When the tape comes to the end or is accidentally broken the Automatic Shut-Off Lever is released and reel movement is stopped. If the Automatic Shut-Off Button is depressed, when the Shut-Off Lever is released, the power of the entire unit is cut off.

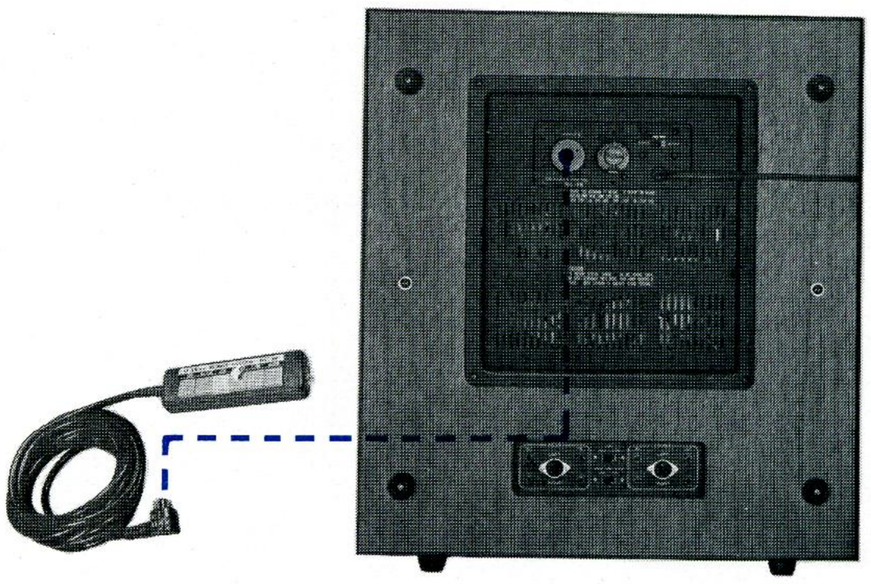
HOW TO USE THE PAUSE BUTTON

For momentarily suspending tape travel during recording or playback, depress Pause Button. Pause control is especially useful for editing tapes. Simply depress when certain portions of the program are not desired. After being depressed, the Pause Button can be locked into position by turning in direction of arrow.

* Pause control is also useful for starting recording smoothly and quickly. Depress Pause Button and set recorder to recording mode. Depress SOURCE Monitor Switch and adjust and balance recording input level while observing VU Meters. When an optimum level has been determined, simply release Pause Button and begin recording.
* Pause control does not function during fast forward or rewind mode.

HOW TO USE THE INDEX COUNTER

Model GX-280D-SS is equipped with a handy 4-digit Index Counter for easy indexing. This provides an easy reference for quickly locating positions on the tape. For resetting, simply depress Reset Button.



REMOTE CONTROL

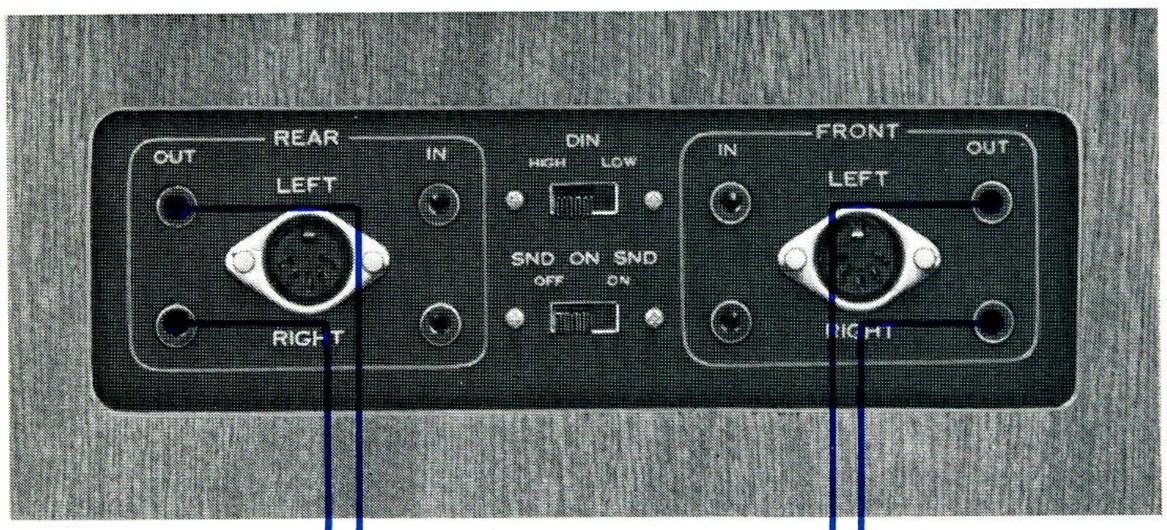
All operating functions of the GX-280D-SS can be remote controlled with Akai Remote Control unit RC-16 (optional accessory). Plug into socket provided on rear panel.

OPERATING INSTRUCTIONS

* Your machine requires constant voltage for optimum performance. The GX-280D-SS is equipped with a Universal Voltage Selector and Cycle Conversion Switch. Voltage and Cycles are preset at the factory according to destination. However, you are requested to confirm setting before attempting operation and if necessary, readjust as indicated on page 14 of this manual. If your local power source is unknown, please ask your nearest electric company for correct voltage and cycles.
* As dirty heads and magnetized heads become the source of loss of sound, distortion, sound drop-out, and other recording and playback failures, the heads must be kept clean and demagnetized at all times.
* Do not place anything on top of your machine which will obstruct the ventilator.
* Place machine on a flat horizontal surface and operate either horizontally or vertically.
* If the sound sources are so far away from the microphones that the recording level controls must be turned up to maximum, some hum or noise will inevitably be recorded. A test recording is recommended before attempting a final recording.
* Use good quality tapes. New tape gives best results.
* As tapes which have not been used for a period of time may have become sticky, run once before using.
* Always store tapes in a cool, dry place.

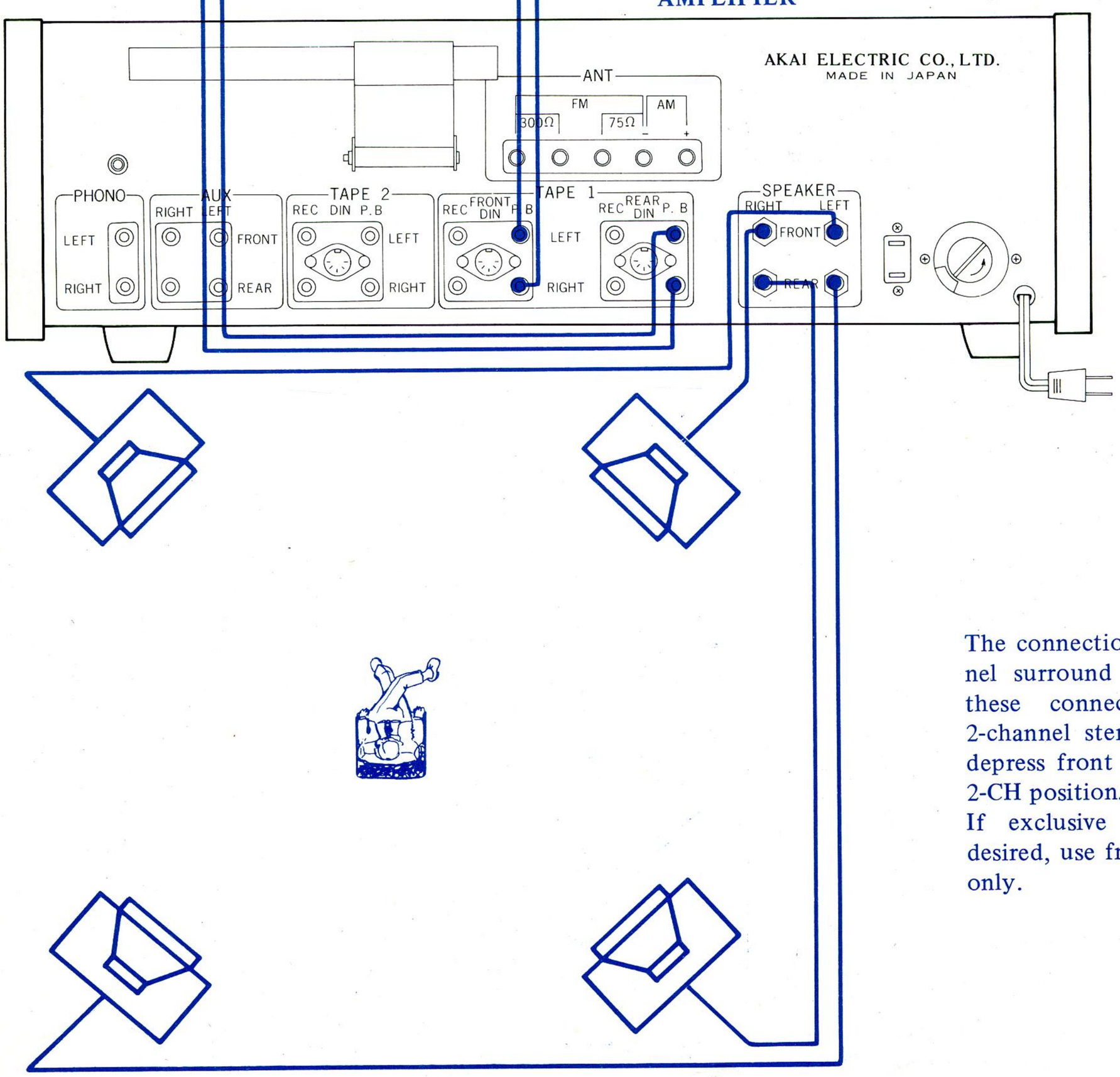
Should there be a problem with your machine, write down the model and serial numbers and all pertinent data regarding warranty coverage as well as a clear description of the existing trouble and contact your nearest authorized Akai Service Station or the Service Department of Akai Electric Company, Tokyo, Japan.

CONNECTIONS FOR PLAYBACK



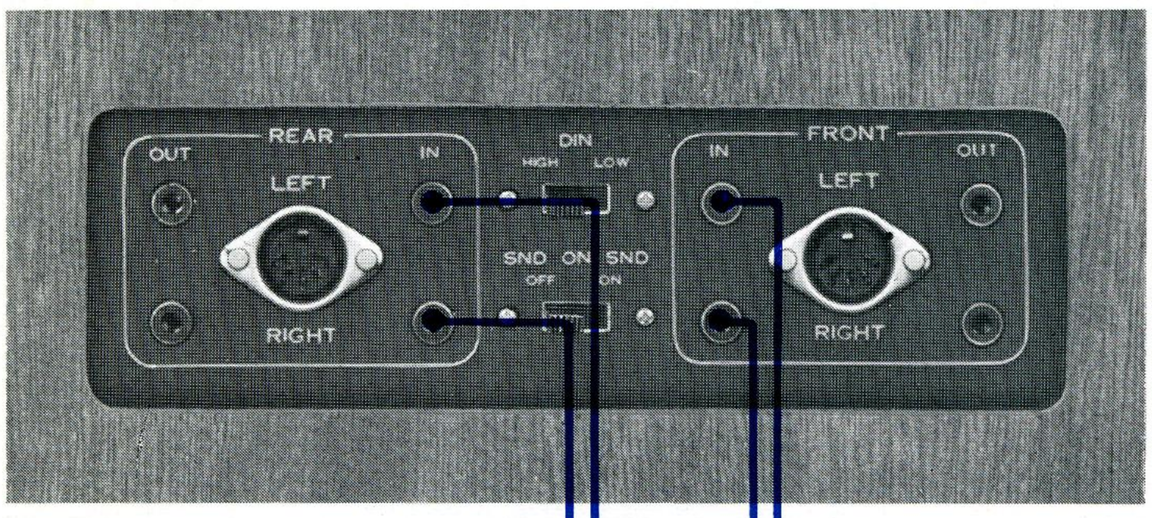
The Din Jacks at the rear of the recorder are used for inter-connecting the GX-280D-SS with an external amplifier.
This system enables easy recording or playback through an external amplifier as the complex connection or disconnection of several separate plugs is not necessary.

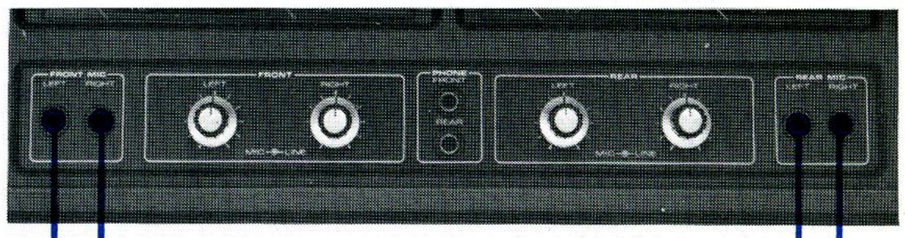
AMPLIFIER

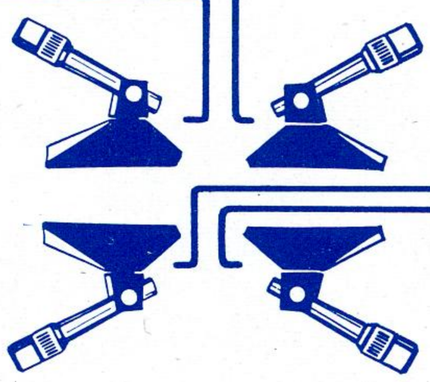


The connections at left are for 4-channel surround stereo playback. When these connections are made and 2-channel stereo playback is desired, depress front panel Stereo Selector to 2-CH position.
If exclusive 2-channel playback is desired, use front channel connections only.

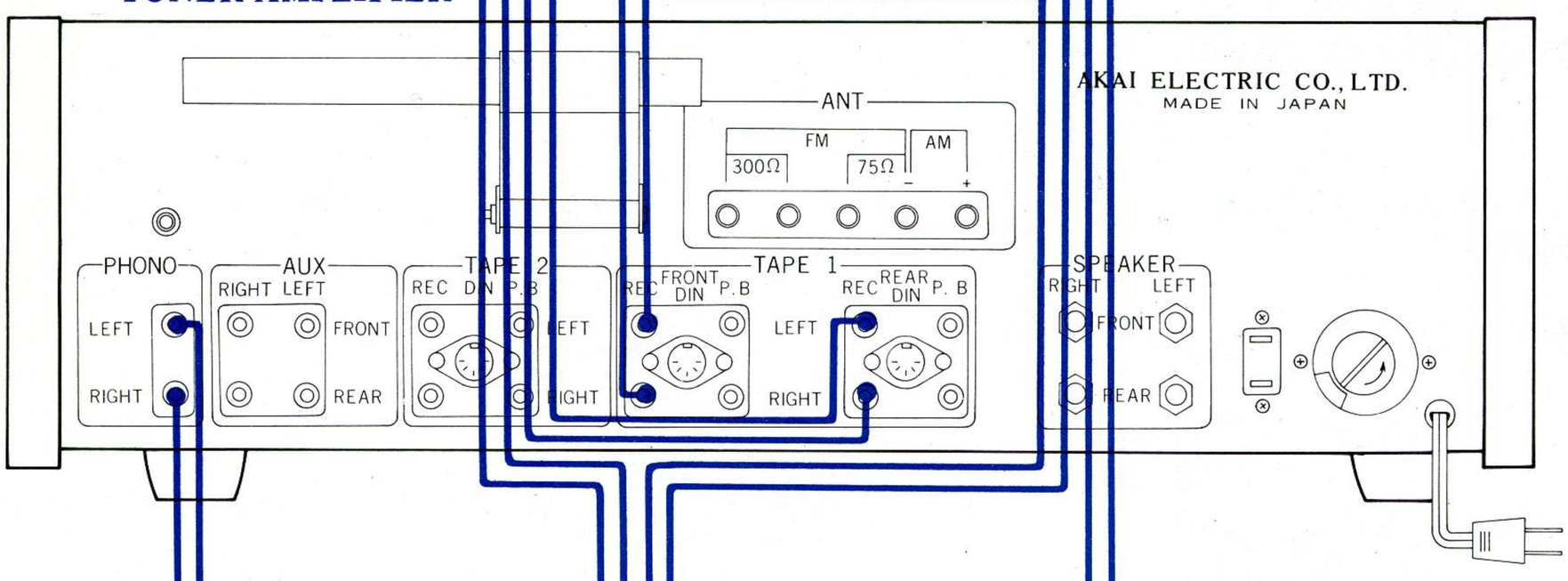
CONNECTIONS FOR RECORDING



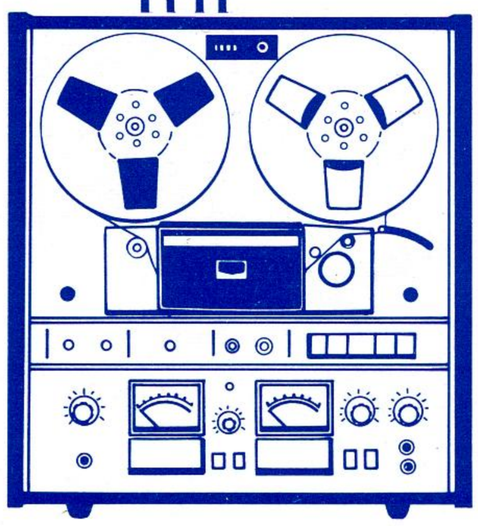




TUNER AMPLIFIER



2-channel stereo magnetic cartridge turntable. If a 4-channel stereo magnetic cartridge turntable with built-in 4-channel playback unit is used, connect to the respective front and rear channel input jacks of the GX-280D-SS.



4-channel stereo tape deck or recorder.
When connections for 4-channel stereo recording is made and 2-channel stereo recording is desired, depress Stereo Selector to 2-CH position. For exclusive 2-channel stereo recording, use front channel connections only.

2-channel stereo crystal or ceramic cartridge turntable.
2-channel stereo crystal or ceramic cartridge turntable. Connect to front channel input jacks of the GX-280D-SS.

4-CHANNEL SURROUND STEREO PLAYBACK

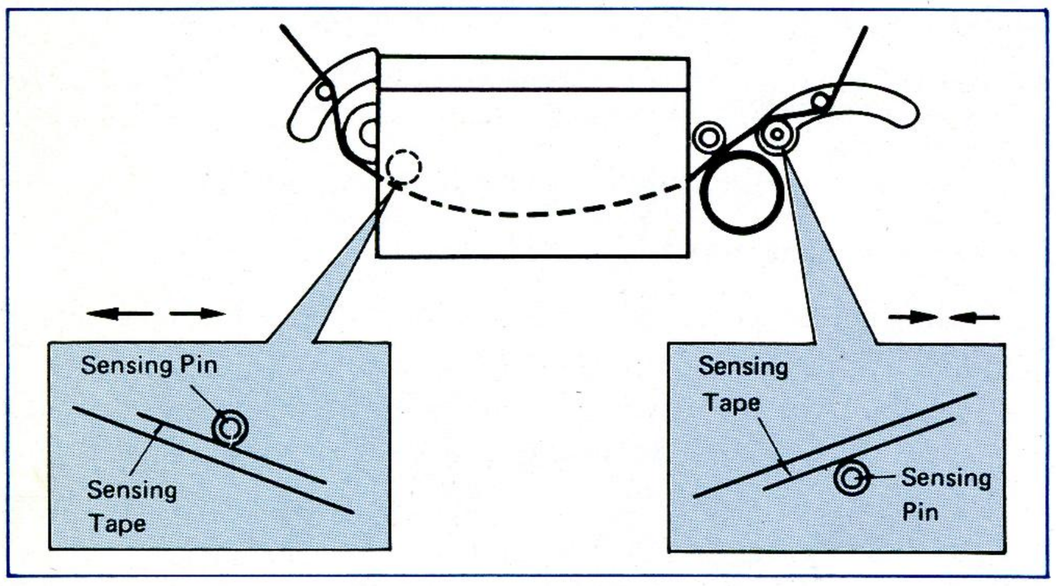
* Connect a 4-channel stereo amplifier/speaker system to the front and rear channel Output Jacks as shown in CONNECTIONS FOR PLAYBACK. If a 4-channel stereo amplifier is not available, connect a 2-channel stereo amplifier each to the front and rear channel jacks respectively.
* Please read OPERATING INSTRUCTIONS carefully prior to operation.
* Load a pre-recorded tape following the instructions on page 4.

1. Connect power cord and turn on Power Switch (A).
2. Set Stereo Selector (B) to 4-CH position.
3. Select tape speed with Tape Speed Selector Switch (C).
4. Set Monitor Switch (D) to TAPE positon.
5. Depress Forward Button (E) to begin playback.
6. Adjust external amplifier controls.
7. To stop tape travel during playback, depress Stop Button (F).

2-CHANNEL STEREO PLAYBACK

* Connect a 2-channel stereo amplifier/speaker system to the front channel Output Jacks as shown in CONNECTIONS FOR PLAYBACK. In case a 4-channel stereo amplifier is used, utilize only the front channel connections.
* Please read OPERATING INSTRUCTIONS carefully prior to operation.
* Load a pre-recorded tape following the instructions on page 4.

1. Connect power cord and turn on Power Switch (A).
2. Set Stereo Selector (B) to 2-CH position.
3. Select tape speed with Tape Speed Selector Switch (C).
4. Set Monitor Switch (D) to TAPE position.
5. Depress Forward Button (E) to begin playback.
6. Adjust external amplifier controls.
7. To stop tape travel during playback depress Stop Button (F).
8. Depress Reverse Button (G) for playback of reverse side or invert reels.



AUTOMATIC & MANUAL REVERSE PLAYBACK

For automatic reverse playback, affix about a 2.5 cm (1") long piece of sensing foil to the outside of the tape at desired reversing point. If continuous reverse between two points is desired, affix another piece of sensing tape to the inside of the tape at desired reversing point. As the foil passes the sensing pole(s) reverse is effected. Model GX-280D-SS is also equipped with a Manual Reverse Button for manual reverse playback. To effect manual reverse, depress Manual Reverse Button on control panel.

4-CHANNEL AUTOMATIC REWIND/SHUT-OFF

Apply a piece of sensing foil to the outside of the tape at desired reversing point and depress Shut-Off Button. When the tape reaches the place at which sensing foil is affixed, it will automatically rewind. After the tape has been rewound, the shut-off mechanism will be activated to cut off the power of the unit.

4-CHANNEL AUTOMATIC REWIND/ CONTINUOUS PLAYBACK

Apply sensing foil to the outside of the tape for normal playback to rewind and inside for rewind to repeat at desired repeating point, and confirm that Shut-Off Button is at OUT position. When the tape reaches the place at which sensing foil is affixed, it will automatically rewind to starting position (point at which sensing tape is applied) and playback will continue. The tape will be played and rewound over and over until the unit is manually turned off.

2-CHANNEL AUTOMATIC REVERSE PLAYBACK/SHUT-OFF

Apply a piece of sensing foil to the outside of the tape at desired reversing point and depress Shut-Off Button. When the tape reaches the place at which sensing foil is affixed, reverse playback is effected. At the end of reverse playback, the shut-off mechanism will be activated to cut off the power of the unit.

2-CHANNEL AUTOMATIC CONTINUOUS PLAYBACK

Apply sensing foil to the outside of the tape for normal to reverse playback and inside for reverse to normal playback at desired reversing points, and confirm that the Shut-Off Button is at OUT position. When the tape reaches the place at which the sensing foil is affixed, reverse playback will be effected. At the end of reverse playback (point at which sensing foil is applied) palyback will continue in the opposite direction, thus providing continuous playback in both directions.

4-CHANNEL STEREO RECORDING

* Connect desired 4-channel program source to the appropriate inputs of the GX-280D-SS as shown in CONNECTIONS FOR RECORDING.
* Please read OPERATING INSTRUCTIONS carefully prior to operation.
* Load tape following instructions on page 4.

1. Connect power cord and turn on Power Switch (A).
2. Set Stereo Selector (B) to 4-CH position.
3. Select tape speed with Tape Speed Selector Switch (C).
4. With Reset Button (D), set Index Counter to "0000". This Index Counter furnishes a quick reference for locating positions on the tape.
5. Set Monitor Switch (E) to SOURCE position.
6. Adjust and balance Recording Level Controls (front and rear channel left and right) (F) while observing corresponding VU Meters. Normal recording level should not exceed "0" VU.
7. When an optimum level has been determined, while holding Record Safety Button (G) at depressed position, depress Forward Button to begin recording.
8. To stop tape travel during recording, depress Stop Button (H).

2-CHANNEL STEREO RECORDING

* Connect desired 2-channel program source to the appropriate inputs of the GX-280D-SS as shown in CONNECTIONS FOR RECORDING.
* Please read OPERATING INSTRUCTIONS carefully prior to operation.
* Load tape following instructions on page 4.

1. Connect power cord and turn on Power Switch (A).
2. Set Stereo Selector (B) to 2-CH position.
3. Select tape speed with Tape Speed Selector Switch (C).
4. With Reset Button (D), set Index Counter to "0000". This Index Counter furnishes a quick reference for locating positions on the tape.
5. Set Monitor Switch (E) to SOURCE position.
6. Adjust and balance Recording Level Controls (front channel left and right) (F) while observing corresponding VU Meters. Normal recording level should not exceed "0" VU.
7. When an optimum level has been determined, while holding Record Safety Button (G) at depressed position, depress Forward Button to begin recording.
8. To stop tape travel during recording, depress Stop Button (H).
9. Invert reels for recording on reverse side.

NOTES FOR YOUR CONVENIENCE

* When using Line Input Jacks for connection with the external source, the input level is adjusted with the Line Recording Level Controls.
* When using Din Jacks for connection with an external amplifier, or the Microphone Jacks the input level is adjusted with the Microphone Recording Level Controls.
* Microphones must not be placed on top of or too close to the recorder. Preferably, the microphones should be placed on a separate table to prevent vibrations of the recorder motor from reaching them. For best results, a distance of at least 2 meters should be maintained between microphones.
* The use of the Monitor Switch during recording enables correct adjustment of the sound source input level as well as comparison of the sound source and the recording. For monitoring sound source depress Monitor Switch to IN position, and for monitoring recording depress to OUT position.
* To momentarily suspend reel movement during recording, use the Pause Button.
* For monitoring sound, use stereo headphones of 8 Ω impedance. Connect headphone plug to the Headphone Jacks on front panel.
* The Din Jacks are used for inter-connecting the GX-280D-SS with an external amplifier. This system enables easy recording or playback through an external amplifier as the complex connection or disconnection of several separate plugs is not necessary. The GX-280D-SS is also equipped with a Din Jack Input Selector Switch. When recording from an external amplifier, if the output level of the amplifier is high, set Selector Switch to HIGH position, and if low, set to LOW position.

  For easy check of input level when using Din/Din connection cord, after connection has been made, turn input level to maximum. If VU indicator movement is limited, set switch to LOW position. If indicator moves excessively, set Selector Switch to HIGH. In case the indicator shows no movement at either position, use opposite ends of the Din cord.

SOUND-ON-SOUND RECORDING

The Sound-on-sound feature is utilized for transfer of previously recorded material from one channel to another for language training, fun or professional use.

First Recording

1. Confirm that there are no connections to the Input Jacks.
2. Set Stereo Selector to 4-CH position.
3. Plug in microphone to rear channel left Microphone Jack.
4. Depress Monitor Switch to SOURCE position.
5. Adjust rear channel left Microphone Recording Level Control while observing corresponding VU Meter.
6. Depress Reset Button and set Index Counter to "0000".
7. While holding Record Safety Button at depressed position, depress Forward Button to begin first recording; i.e., A-B-C.
8. When the first recording is completed, rewind tape to starting point.

Second Recording

9. Confirm that the Monitor Switch is at SOURCE position and set Sound-On-Sound Switch at rear of unit to ON positon.
10. Set Stereo Selector to 2-CH position.
11. Plug in microphone to front channel right Microphone Jack.
12. Increase front channel right Line Recording Level Control to approximately maximum.
13. Connect stereo headphones to front channel Stereo Headphone Jack for monitoring the first recording.
14. Adjust front channel right Microphone Recording Level Control while observing corresponding VU Meter.
15. While holding Record Safety Button at depressed position, depress Forward Button to begin second recording; i.e., A′-B′-C′. As the second recording A′-B′-C′ is being made, the first recording A-B-C is monitored through headphones. The two recordings will be completely merged on front channel tracks . . . . A-A′-B-B′-C-C′.
16. For playback, rewind tape to starting point, depress Monitor Switch to TAPE position and set both recorder and external amplifier to front channel playback mode.

SOUND MIXING

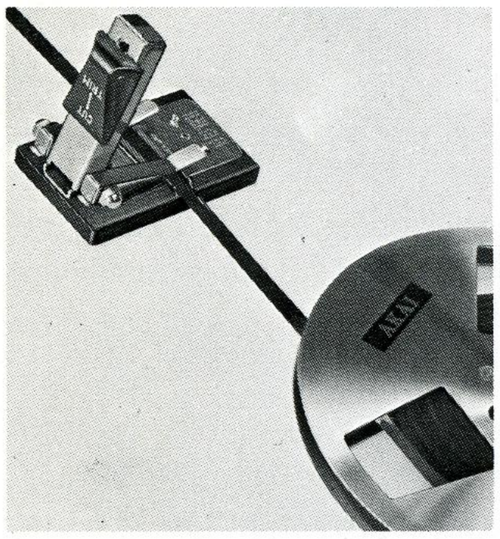
Model GX-280D-SS is equipped with independent Line and Microphone Jacks and input level controls for mixing signals from two separate sources simultaneously. Record your own voice accompanied by your favorite combo, orchestra, etc.

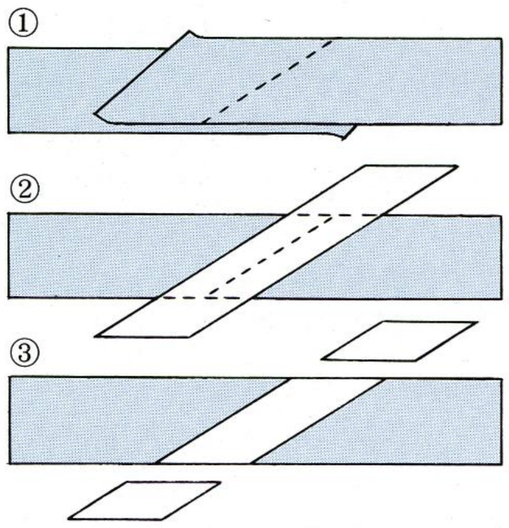
1. Connect power cord and turn on Power Switch.
2. Set Stereo Selector to 2-CH or 4-CH position as desired.
3. Select tape speed with Tape Speed Selector Switch.
4. With Reset Button, set Index Counter to "0000". This Index Counter furnishes a quick reference for locating positions on the tape.
5. Plug in microphone(s) to Microphone Jack(s) and connect line output of external source to Line Input of the GX-280D-SS.
6. Set Monitor Switch to SOURCE position.
7. Adjust and balance microphone input level with Microphone Recording Level Control and line input level with Line Input Level Control while observing corresponding VU Meters. Normal recording level should not exceed "0" VU.
8. When an optimum level has been determined, while holding Record Safety Button at depressed position, depress Forward Button to begin recording.
9. To stop tape travel during recording, depress Stop Button. See AUTOMATIC STOP & SHUT-OFF.
10. If recording is made in 2-channel, invert reels for recording on reverse side.

* Mixing can also be accomplished by using the Din Jack and Line Input connections simultaneously.
* For playback, operate the Stereo Selector according to channels used in making recording.

TAPE ERASING

Any signals previously recorded on the tape will automatically be erased as a new recording takes place. For erasing only, load a tape and set recorder to recording mode. Model GX-280D-SS is equipped with separate 2-channel and 4-channel erase heads. For full track erase, set Stereo Selector to 4-CH position and for 2-channel erase, set to 2-CH position. No plugs should be connected to the input jacks and input volume should be kept at minimum.

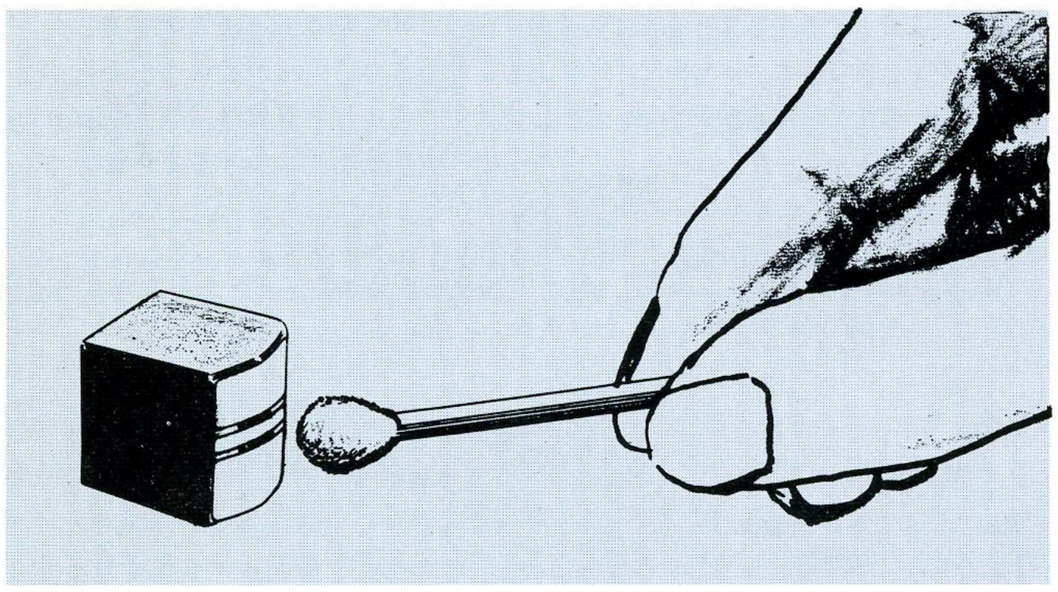




TAPE SPLICING & EDITING

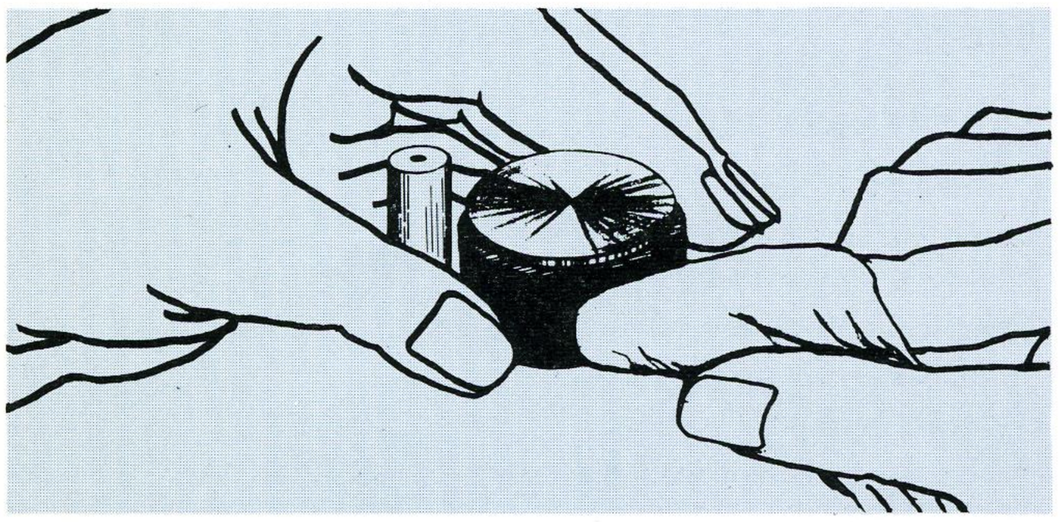
Cut tape diagonally with an overlap so that the ends are lined up. Cover aligned ends with splicing tape. Press firmly exerting pressure to secure ends evenly. Trim off excees splicing tape cutting into recording tape very slightly to eliminate the posibility of a sticky splice. Tape splicing using scissors requires skillful work. Akai Tape Splicer Model AS-3 is recommended for smooth and easy tape splicing.

MAINTENANCE



HEADS SHOULD ALWAYS BE KEPT CLEAN

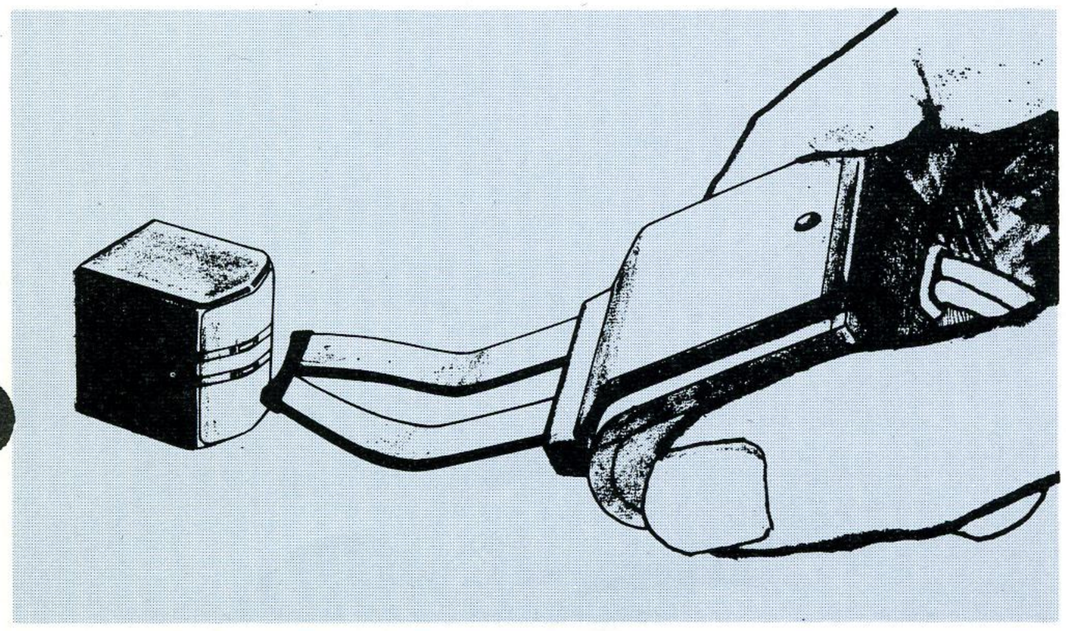
For quality performance, it is imperative that the head block be kept clean at all times. Dust and magnetic particles tend to deposit on the heads after prolonged use of the unit, deteriorating sound quality and sensitivity. The GX Heads do not normally require cleaning. However, if old tapes or tapes which have been spliced are used, head cleaning is recommended. Clean by rubbing the entire head surface (do not scratch) with a cotton swab stick soaked in Akai cleaning fluid (from HC-500 Head Cleaning Kit) or alcohol.



PINCH WHEEL & CAPSTAN CLEANING

If magnetic particles from the magnetic tape, oil, or other foreign matter is allowed to accumulate on the Pinch Wheel and Capstan, irregularity in tape transport may occur deteriorating sound quality. It is, therefore, recommended that these parts be wiped clean occasionally. For cleaning, use Akai Cleaning Kit HC-500, or if Akai cleaning fluid is not available, use alcohol.

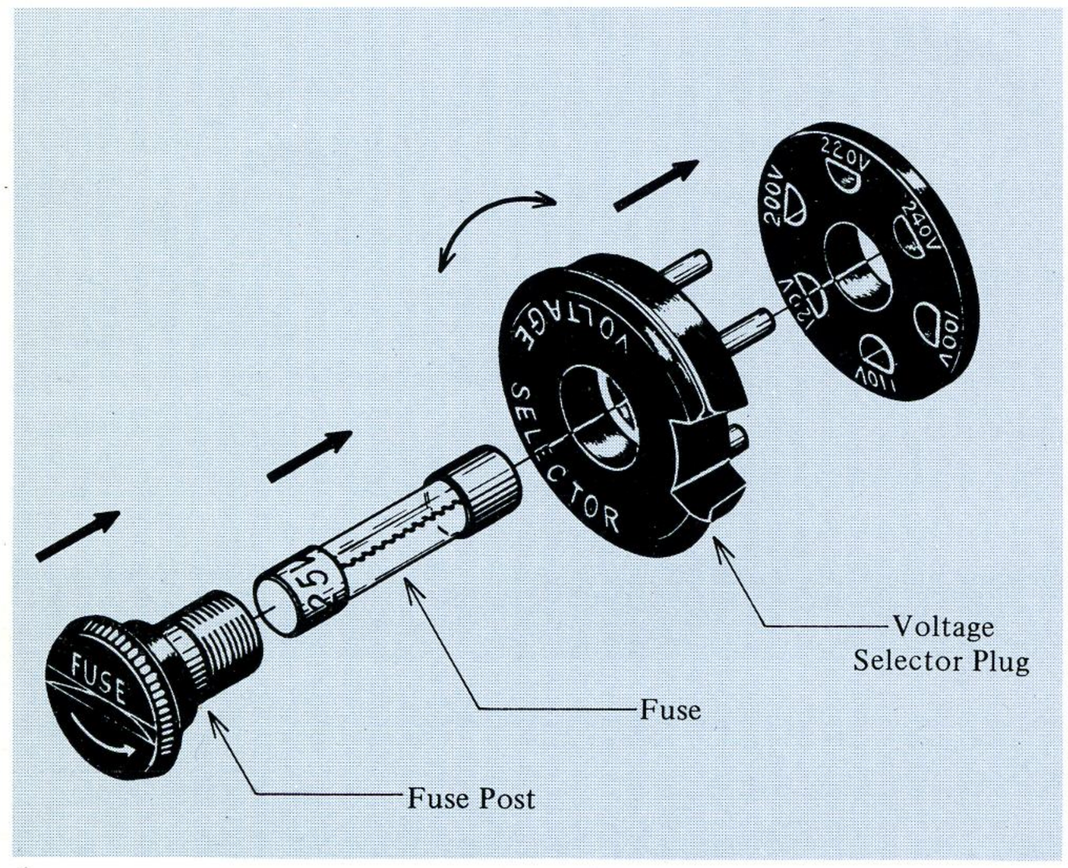
* Do not use chemicals such as chlorothane, etc., as the rubber wheel will deteriorate.

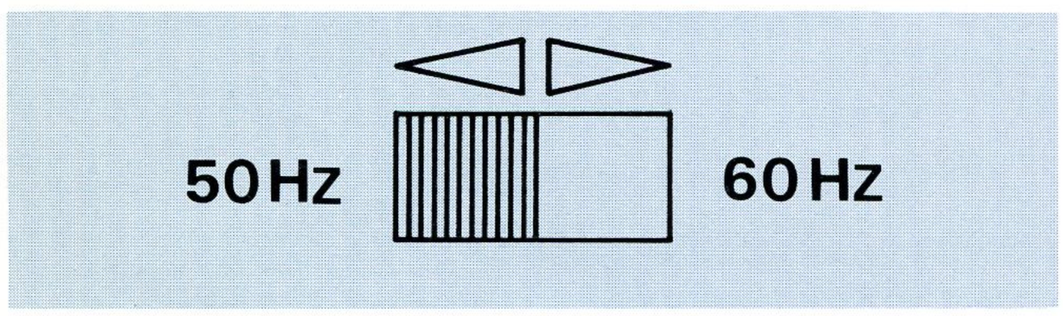


HEAD DEMAGNETIZING

Normally, the steel pole pieces which form part of the recording and playback heads become slightly magnetized. The effect of magnetization is that it causes considerable drop-out or introduces noise into your recordings. It is, therefore, recommended that head demagnetizing be performed periodically. This can be accomplished with a bulk head demagnetizer by bringing it close to the heads and making several circular motions over all head surface areas as well as the head housing.

* Be sure to cut off the power of the unit prior to demagnetizing the heads.
* Do not use magnetized tools in the vicinity of the heads.
* Do not bring the prongs of the demagnetizer close to the VU Meters.





VOLTAGE & CYCLE CONVERSION

CEE, CSA, and UL Standard models are not equipped with a Voltage Selector or Cycle Conversion Switch. Therefore, voltage and cycle conversion is not necessary. If your machine corresponds to any of these standards, please disregard all references to voltage and cycle adjustment throughout this manual.

VOLTAGE

Your machine is equipped with a universal voltage selector offering six selections of voltage from 100 V to 240 V A.C., for worldwide operation. Voltage is preset at the factory according to destination. However, the operator is requested to confirm setting and if readjustment is necessary, proceed as follows : (1) **Disconnect power cord** and remove the Fuse Post by screwing in direction of arrow. (2) Remove the Voltage Selector Plug and reinsert so that proper area voltage shows through plug cut-out. (3) Change fuse according to voltage (please refer to supplied fuse tag instructions).

* To maintain optimum performance and prolong the life of your machine, it is important that the line voltage be held within a 10% deviation of standard area voltage.

CYCLE

Correct tape speed cannot be obtained if the Cycle Conversion Switch located on the rear panel of the GX-280D-SS is not properly positioned. **Disconnect power cord** and set to 50 Hz or 60 Hz according to area power source.

STANDARD ACCESSORIES

Connection Cord	1 set
Demonstration Tape	1
Empty Metallic Reel	1
Sensing Tape	1
Spare Fuse	1 set
Operator's Manual	1

*** Spare fuses are not included with CEE, CSA, UL, and LA Standard models.**

TECHNICAL DATA

Track System ..... 4-track 4/2-channel compatible stereo

Maximum Reel Capacity ..... 7″ reel

Tape Speed ..... 7-1/2 and 3-3/4 ips (±0.5%)

Wow & Flutter ..... Less than 0.10% RMS at 7-1/2 ips
Less than 0.15% RMS at 3-3/4 ips

Equalization ..... Correct equalization for playback of tapes recorded to the NAB curve.

Frequnecy Response . (Using low noise tape)
20 Hz to 25,000 Hz (±3 dB) at 7-1/2 ips
30 Hz to 20,000 Hz (±3 dB) at 3-3/4 ips
(Using regular tape)
30 Hz to 23,000 Hz (±3 dB) at 7-1/2 ips
30 Hz to 19,000 Hz (±3 dB) at 3-3/4 ips

Distortion ..... 0.8% (1,000 Hz "0" VU)

Signal-To-Noise Ratio ..... 55 dB

Erase Ratio ..... Better than 70 dB

Bias Frequency ..... 110 kHz

Heads ..... (4) GX recording and playback heads, full-track erase, 2-channel erase heads.

Motors ..... (3) One servo-motor for direct capstan drive and two 6-pole outer-rotor motors for supply and take-up reel drive.

Fast Forward & Rewind Time ..... Within 90 seconds using a 1,200 ft. tape.

Recording Capacity .. 2-channel stereo : 2 hrs. (1,200 ft. tape, 3-3/4 ips)
4-channel stereo : 1 hr. (1,200 ft. tape, 3-3/4 ips)

Output Jacks ..... Line (4) : 1.23 V ("0" VU)/ 100 Ω; Required load impedance : more than 25kΩ
Phone (2) : 40 mV/8 Ω

Input Jacks ..... Microphone (4) : 0.5 mV/10 kΩ
Line (4) : 0.1 V/150 kΩ

Din Jacks ..... (2) : 0.4 V/60 mV (High)
10 mV (Low)

Semi-Conductors .... 68 silicon transistors, 52 diodes

Integrated Circuits ... 4

Power Supply ..... 100 V to 240 V A.C., 50/60 Hz
CEE models : 220 V, 50 Hz
CSA models : 120 V, 60 Hz
UL & LA models : 120 V, 60 Hz

Power Consumption .. 140 W

Dimensions ..... 435(W) x 505(H) x 250(D) mm, (17.4 x 20.2 x 10″)

Weight ..... 22.4 kg (49.5 lbs)

* For improvement purposes, specifications and design are subject to change without notice.

TROUBLE SHOOTING CHART

The conditions listed below do not indicate mechanical failure of your unit. If your machine exhibits any of these conditions, check for trouble as indicated.

SYMPTOM	TROUBLE	REMEDY
Loss of sensitivity and tone quality.	* Dirty Erase Head. * Wrong side of tape facing the heads. * A.C. power lower than the voltage to which your machine is adjusted. * Magnetized head. * Tape Selector Switch is set incorrectly.	* See HEADS SHOULD ALWAYS BE KEPT CLEAN. * See VOLTAGE & CYCLE CONVERSION. * See HEAD DEMAGNETIZING
Machine will not record or play.	* Check positions of controls and input/output connections. * Check position of the Pause Button. * Check positions of the Stereo Selector.	
Irregularity in tape transport.	* Oil or magnetic particles adhering to the Capstan or Pinch Wheel. * Sticky or dirty tape surface. * Improperly loaded tape. * A.C. power lower than the voltage to which your machine is adjusted. * Sensing tape is affixed improperly.	* See PINCH WHEEL & CAPSTAN CLEANING. * See TAPE LOADING. * See VOLTAGE & CYCLE CONVERSION. * See AUTOMATIC & MANUAL REVERSE PLAYBACK.
Tape will not run.	* Blown fuse. * Power is not being supplied. * Machine is set to pause mode. * Twisted or sticky tape.	* Check power cord, Power Switch, and Shut-Off Button.
Previous recording will not erase.	* Erase head is dirty.	* See HEADS SHOULD ALWAYS BE KEPT CLEAN.
Distorted or noisy sound.	* Recording level is too high. * Check external source controls and connections.	* Normal recording level is "0" VU.

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